

[illegible]

- Sub
A1

5 units are enzymes selected from among transferases, polymerases and synthetases.

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B2

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A2

15 7. Sensor system according to claim 4, characterised in that the biological entity is a di- or oligo-saccharide and in that the sequentially added enzymes include a mono- or oligo-saccharide transferase.

8. Sensor system according to any of claims 1 to 5, characterised in that the monomer compounds are selected from among nucleotides and oligonucleotides.

9. Sensor system according to any of claims 1 to 8, characterised in that the sensor surface has a waveguide or waveguide gradient arrangement allowing optical detection of the refractive index variation, linked to the variation in mass at the sensor

surface, this refractive index variation being able to be correlated with the analysis of the biochemical entity.

10. Sensor system according to any of claims 1 to 9, characterised in that the monomer compounds are labelled with a chromophor or a fluorophor allowing an absorption or fluorescence measurement to be made which can be correlated with the analysis of the biochemical entity.

11. Sensor system according to any of claims 1 to 10, characterised in that the sequence of nucleotides forming the detection unit is directly linked to the surface of the sensor by a covalent link.

12. Sensor system according to any of claims 1 to 11, characterised in that the detection unit is linked in a one-directional manner by its end 3' or 5'.

13. Sensor system according to any of claims 1 to 12, characterised in that the nucleotide sequence forming the detection unit is linked to the surface of the sensor by photo-immobilisation.

14. Sensor system according to any of claims 1 to 13, characterised in that the nucleotide sequence forming the detection unit is indirectly linked to the sensor surface by a bi-functional scaffold, which is itself linked to said surface by a docking unit.

15. Sensor system according to any of claims 1 to 14, characterised in that the compounds allowing the scaffold to be formed are selected from among, a bi-functional molecular entity, such as a hetero-bi-functional cross linking agent, an antibody modified by a nucleotide or one of its fragments, DNA dendrimers of suitable size, and metal or semiconductor nanocrystalline compound colloids.

16. Sensor system according to claim 14, characterised in that the compounds allowing the docking unit to be formed are selected from among immunogloblins, protein A, protein G and amalgamated protein A-G.

17. Sensor system according to claim 14, characterised in that the compounds allowing the docking unit to be formed are selected from among avidine, neutravidine, streptavidine and DNA or RNA oligonucleotides occupying a quarter of the biotin link sites.

18. Sensor system according to claim 14, characterised in that the compounds allowing the docking unit to be formed are selected from among a labelled polyhistidine and a labelled nitroacetate.

19. Sensor system according to claim 14, characterised in that the docking unit is formed by an oligonucleotide having a partially complementary nucleotide sequence to one of the branches of a dendrimer when the molecular structure has a dendrimer architecture.

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